

In the Claims

The claim listing is as follows:

1. (Previously presented) A metering device comprising:

a material reservoir containing coating material;

a metering element, operationally attached for engaging a compressible material line, thereby causing a selectable peristaltic effect upon the coating material in said compressible material line, wherein said material reservoir directly communicates with the compressible material line; and

a material dispensing end, moveably secured to said metering element, for movement with said metering element during dispensing.

2. (Original) The metering device of claim 1, further comprising a control system operatively attached to said metering element, where said control system allows for control of the selectable peristaltic effect and said metering element.

3. (Original) The metering device of claim 1, further comprising a base, said base adapted so that the compressible material line is positioned between said base and said metering element.

4. (Original) The metering device of claim 3, wherein said base comprises a depression for engagement with said compressible material line.

5. (Original) The metering device of claim 1, wherein said metering element is rotatable.
6. (Original) The metering device of claim 1, wherein said metering element is slid able.
7. (Original) The metering device of claim 1, wherein said metering element has an arcuate portion.
8. (Original) The metering device of claim 7, wherein said metering element is a cylinder.
9. (Original) The metering device of claim 8, wherein said metering element is a cylinder of a plurality of diameters.
10. (Original) The metering device of claim 1, further comprising the compressible material line.
- 11-12. (Cancelled).
13. (Previously presented) The metering device of claim 1, wherein said material dispensing end is a dispensing needle.
14. (Previously presented) The metering device of claim 1, further comprising a robotic positioning system operatively attached to said material dispensing end.

15. (Original) The metering device of claim 1, wherein said peristaltic effect causes a dispensing of a unit of material from said metering device.

16. (Original) The metering device of claim 15, wherein the quantity of said unit of dispensed material is within 2% of a desired quantity of material to be dispensed.

17. (Previously presented) A precision metering system comprising:

a material delivery unit including:

a material reservoir, a material dispensing end, a compressible material line connecting said material reservoir and said material dispensing end, and a valve, wherein the material dispensing end is moveably secured into the material delivery unit for movement with the material delivery unit during operation;

a base; and

a metering element, engaging most of the length of said compressible material line between said metering element and said base, thereby creating a peristaltic effect upon a material in said compressible material line, said peristaltic effect thereby causing a precision dispensing of a unit of material from said material dispensing end, wherein said unit of material is selectable.

18. (Original) The precision metering system of claim 17, further comprising a control system operatively attached to said metering element, wherein said control system allows for control of said metering element.

19. (Original) The precision metering system of claim 17, further comprising a robotic positioning system operatively attached to said material dispensing end.

20. (Original) The precision metering system of claim 17, wherein said metering element is a cylinder.

21. (Original) The precision metering system of claim 17, wherein said metering element is rotatable.

22. (Original) The precision metering system of claim 17, wherein said metering element is slidable.

23. (Currently amended) A metering device comprising:

a metering element that is translationally slidable and rotatable and meters to within +/- 2% of a desired quantity of a material to be dispensed;

a rotatable threaded shaft that translationally moves said metering element;

a frame, wherein said metering element is movably attached to said frame; and

a material holding system attached to said frame and configured to hold a reservoir having a compressible line attached, wherein a length of said compressible line is positionable beneath said metering element, and upon said sliding or rotation of said metering element causes a peristaltic effect upon a material located within said compressible material line further causing a precision dispensing of a unit of the material from said device.

24. (Withdrawn) The metering device of claim 23, further comprising a control system operatively attached to said metering element, wherein said control system allows for user programmability of said metering element.

25. (Previously presented) The metering device of claim 23, further comprising:

a clamp base, wherein said clamp base is positioned above said base.

26. (Original) The metering device of claim 23, wherein said metering element is selectable.

27-28. (Canceled)

29. (Previously presented) The metering system of claim 19, wherein said robotic positioning system includes a gantry frame.

30. (Canceled)

31. (Currently amended) A method of precision dispensing of material comprising:

providing a device which includes a base a rotatable threaded shaft and a metering element;

providing a reservoir having a compressible material line;

inserting the reservoir into the device;

positioning said compressible material line between said metering element and said base;

moving one of said base, metering element, compressible material line, or a combination thereof, to cause a peristaltic effect upon a material within said compressible material line;

rotating said rotatable threaded shaft causing controlled translation motion of said metering device of a precise unit; and

dispensing said precise unit of said material from said device.

32. (Original) The method of claim 31, wherein said metering element is a rotatable cylinder.

33. (Original) The method of claim 31, wherein said precise unit of material dispensed is within 2% of a quantity desired to be dispensed.

34. (Previously presented) The metering device of claim 23 further comprising:

a pinch roller of said metering element; and

a carriage block attached to said pinch roller wherein the length of the compressible line is positioned beneath said pinch roller of said metering element and wherein said rotatable shaft is a ball screw shaft that operationally engages and translationally moves said carriage block of said metering element.